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STUDY OF ARTIFICIAL INTELLIGENCE IN FOOD AND BEVERAGE SERVICE DEPARTMENT IN PREMIUM STAR RATED HOTELS IN NATIONAL CAPITAL REGION

SHORT SYNOPSIS

Submitted in fulfillment of the requirement of the degree of

DOCTOR OF PHILOSOHY

to

Manav Rachna International Institute of Research and Studies

(Deemed to be University)

by

Prachi

Registration Number: 19/Ph.D./062

Under the supervision of

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Certificate

I hereby declare that the short synopsis 'STUDY OF ARTIFICIAL INTELLIGENCE IN FOOD AND BEVERAGE SERVICE DEPARTMENT IN PREMIUM RATED HOTELS IN NATIONAL CAPITAL REGION' being submitted in partial fulfillment of the requirement for the degree of Doctor of Philosophy in Management under Faculty of Management Studies of Manav Rachna International Institute of Research & Studies, Faridabad during the academic year 2021-22. It is a bona fide record of original work carried out under the supervision of Dr. Sonal Pathak and has not been submitted in full or part to any other university or institute for degree or diploma. Further, it is certified that short synopsis is plagiarism free and proof has been submitted.

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ABSTRACT

The two most important sectors in service industry hotel industry and tourism industry. Hotels and tourism these two sectors are increasing tremendously because of the advancement in technology and globalization. As there is globalization and advancement of technologies in service sector, this sector has adopted the technologies like robots in restaurants, chatbots for ordering and billing, chatbots for solving the queries of customers, devices that has voice enabled in it which helps the guest in resolving their queries and controlling the functioning of Air Conditioners, lights etc. Artificial intelligence assists food and beverage service department by using chatbots- the virtual assistants which helps in responding the guests' requests, inquiries and customization of orders. 5-star hotels restaurants are using recommendation engines which helps the guest to choose their meals according to their eating preferences. With the help of these engines food and service department identifies the customers taste and preferences, which helps the restaurant managers in predicting the possible sales pattern

Advancement of technologies or innovation in technologies has affected the guest as well as hotels, thus it is becoming the most important factors for resorts and hotels to change. Based on advancement in Internet of Things (IoT), Automation and Artificial Intelligence in 5-star hotel will change with these changing technologies will only be able to survive in this competitive world. Hospitality industry has just started adopting the artificial intelligence in their working though the hotel numbers that are following artificial intelligence can be less but in coming future the demand and changes in trends will give a great experience.

Keywords: Hotel Industry, Service Quality, Artificial Intelligence, Chatbox, Food & Beverage Service Department, Five Star

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1. INTRODUCTION

1.1. Hotel Industry

In today's time tourism sector is one of the biggest sectors and contributes 10 percent to GDP. Hospitality industry is also one of the parts of tourism sector and will grow in future, as people loves travelling and exploring new places. Competition in hotel industry is rising tremendously and to compete with hotels or to survive in this competitive world it is necessary to have regular guests and to have repeat customers and to have new guests it's an expensive task. To have regular guests it's important that hotels must provide a high level of customer satisfaction and high service quality. It is the duty of hospitality employees to give personalized services to their guest and make memorable stay or experience at hotel. For this it is necessary to have the knowledge about the customers need.

1.2 Food and Beverage Service Industry

The food and beverage service department is the largest in the hotel and deals with the service of the food, purchasing of products, their storage, their process, handling guests. The food and beverage industry engages itself in the provision of food and beverages, mainly to people who are away from their homes for different reasons. Food and beverage service department is responsible for managing restaurants, bar, food costing, maintaining high quality of service of food and beverage. Food and beverage industry has now set to open arms to innovations with the help of Artificial Intelligence. AI helps the Food and Beverage industry to predict the sales cycle that keeps the tracks of customers, their likes, choices and preferences. Artificial Intelligence in food and beverage industry act as a helping hand in forecasting the inventories as most of the hotel's struggle to identify which product should be stocked, where to be stocked and it can be stored.

1.3. Artificial Intelligence

Artificial Intelligence stores, collects and analyses the customer's requirements and customer's needs which improvises the customers experience by offering personalized services. Hotel industry focuses on the organization or people which provide accommodation and food to their guests where services are intangible. Nowadays customers have travelled so much and are well experienced which leads to more expectations for customer satisfaction and service quality. New strategies are being reinvented by the hotel managers, by continuous changes in a business which means more requirements of money, training, time, staff etc. With Adoption of Artificial

Intelligence hotel can improve their services and can increase the customer satisfaction with the help of their motivated staff which again helps the hotels to be in competition and boost their turnover.

1.4. Artificial Intelligence in India

Increase in the demand for travel and tourism sectors in India affects in the demand for hotel industry. There are so many chain hotels have been opened in almost every state and cities, as travelers or tourists are visiting the tourist places and thus the demand for hotels has also been increased. Because of globalization and technological advancement and in order to survive in this competitive world hotels have started branding themselves and even started setting up strategic partnership. To get repeat business and customer satisfaction it is necessary for the hotels that they must focus on their higher service quality.

1.5. Innovation

Artificial Intelligence is defined as computer systems that have been developed to perform the tasks like human level intelligence. Artificial Intelligence plays an important role in service industry. Hotels operates 24×7 and because of artificial intelligence it can have the ability to carry out functions at any time of the day which means that hotels can save a huge amount of money as well as time and can serve a superior quality of services to their guests. Artificial Intelligence helps the guests to have access for various kind of amenities like room amenities, bathroom amenities, guest supplies and services which includes spa, gym, restaurants, bar, bakery etc. It helps the guests to make any telephone calls that are hands free. It helps the guests to control the lighting in the rooms, to control the temperature of air conditioner, to control sounds of music and many more.

In today's time hospitality sector is one of the biggest sectors and contributes about 10 percent of GDP. Hotel industry is also one of the parts of hospitality sector and will grow in future, as people loves travelling and exploring new places. Competition in hotel industry is rising tremendously and to compete with hotels or to survive in this competitive world it is necessary to have regular guests and to have repeat customers. And to have new guests it's an expensive task. To have regular guests it's important that hotels must provide a high level of customer satisfaction and high level of service quality. It is the duty of hospitality employees to give personalized services to their guest and make memorable stay or experience at hotel. For this it is necessary to have the knowledge about the customer's needs. Artificial Intelligence stores,

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Artificial Intelligence is being used in many industries because it helps in improving the quality and productivity of an organization. Hospitality Industry started adapting these developments in order to grow in future. It's always considered that any technical advancement or developments and robots will take away the jobs but not necessarily in every case. It can be possible that Artificial intelligence may not be able to fully replace hotel's staff as the way hotel employees understands the value and emotional bond with the customers. Artificial Intelligence may not be able to understand that emotional interactions with their customers is utmost crucial. Hotel industry works on to provide personalized services to their guess and to achieve its information and knowledge are required to create personalized service. To this there will be requirement of technology in order to collect, store and analyze the information. So, both employees and artificial intelligence can help the hotelier to achieve the goals and customer's expectations and repeat business.

Increase in the demand for travel and tourism sectors affects in the demand for hotel industry. We see that many chain hotels have been opened in almost every state and cities, as travelers or tourists are visiting the tourist places and thus the demand for hotels has also been increased. Because of globalization and technological advancement and in order to survive in this competitive world hotels have started branding themselves and even started setting up strategic partnership. To get repeat business or customer satisfaction it is necessary that hotels must focus on higher service quality.

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as well as time and can serve a superior quality of services to their guests. Artificial Intelligence helps the guests to have access for different kind of amenities like room amenities, bathroom amenities, guest supplies and services includes spa, gym, restaurants, bar, bakery etc. It also helps the guests to make any telephone calls that are hands free. It helps the guests to control the lighting in the rooms, to control the temperature of air conditioner, to control sounds of music and many more.

2. LITERATURE REVIEW

Ambite and Knockblock (2017), Balazinski (2002), Christiani (1999) have explained that artificial intelligence has grown tremendously and helped the human beings in reducing time and efforts. Dabewa Lukanoava (2017) has emphasized that hospitality has developed drastically from the twenty first century and is an old activity. Various socioeconomic factors can be influenced by various changes in qualitative and quantitative approach as there will be increase in demand of tourism there will be rise in the volume and growth of hotel industry.

Likanova (2014) have explained that the formation of more demand will lead to more competition in hospitality which in turn leads to high standards of services and facilities provided to the guests by the hotels. Hotel organization can emphasize more on how to offer guest instead on focusing what they can offer. Nowadays, the tourists are more focused towards the offers and packages that are being provided. Which includes the prices, services in the destinations, service quality, food offered, indoor and outdoor experience must be of good quality and many more.

Table 01: Difference between AI and Automation

Source: Geeks for geeks

Sr. No	Artificial Intelligence	Automation
1	AI makes decision based on the learning from past experience & information it receives.	Automation is like preset and self-running to perform specific tasks.
2	AI is system that helps experts to analyze situations and arrive at certain conclusion.	Automation is kind of machine programmed to carried out a routine job.
3	AI is for non-repetitive tasks.	While Automation is for repetitive tasks based on the commands and rules.
4	AI involves learning and evolving.	Automation does not involves learning and evolving.
5	AI have interaction with humans and it learns from past experience and compare the situations and then work according to it.	While Automation has no interaction with humans and it works on instructions

German & Murlidharan (2001) suggested that in today's world in order to survive in this highly competitive environment, innovation is the utmost necessary and innovation is one of the most important parts of the hotel strategy to grow. Ivanov, Webster, Berezina (2017) RAISA (Robots, Artificial Intelligence and Service Automation) are the new technologies that helps the hotel to increase revenue and productivity, to improve functioning and operations of various departments in the organization, and a consistent level of service quality.

Becker (2000) and Singer (2000) have explained that there are Sixteen categories of Artificial Intelligence like collection of information, storing of information, programming, understanding the natural language, knowledge representation, artificial life, theory of computation, machine learning, reasoning, interpretations, distribution and many more. Metaxiotis (2003), Raymor (2000) have explained that artificial Intelligence is increased and grown in almost every field like in medicine, business, marketing, education, law, economy, engineering designing etc. The two most important sectors in service industry are travel and tourism. Because of the advancement in technology and globalization travel and tourism these two sectors are increasing tremendously.

Kattara (2014) outlined that there is globalization and advancement of technologies in service sector, this sector has adopted the technologies like robots in restaurants, chatbots for ordering and billing, chatbots for solving the queries of customers, devices that has voice enabled in it which helps the guest in resolving their queries and controlling the functioning of AC
Ivanov, Webster, Berezina (2017) stated that we can see that machines are also performing like human beings and are reciprocating quick witted behaviors like humans. Hotels have also embraced the artificial intelligence in many ways like check in and checkout counters which we call as Hotel Kiosk, delivering food items on guest's tables, bookings etc. Advancement of technologies or innovation in technologies has affected the guest as well as hotels, thus it is becoming the most important factors for resorts and hotels to change. Hotel that will change will be able to survive in this competitive world. Hospitality industry has just started adopting the artificial intelligence though the hotel numbers that are following artificial intelligence can be few or less but in coming future the demand and changes in trends to give a WOW factor and great experience to the guest hotels will have to adopt artificial intelligence in their working.

Beastson Lee and Coote (2007) has given modern examples of artificial technologies are digital kisosk, mobile apps, virtual reality, robots, chatbots etc. Artificial Intelligence is one of the most important parts of robotic technology. In artificial intelligence the machine has ability to understand and use the human language in proper manner to execute the work in their way. Artificial Intelligence is found in many phases of public life for many reasons like knowledge, learning, communication, planning, reasoning etc. Chen & Hu (2013) have defined robots as intelligent physical device that can perform the tasks which are intended from AI. Murphy (2017) has classified the robots into two types. First one is the service robots and the second one is industrial robots.

If we talk about professional service robots and industrial robots they are applied in the back of the house. For example: cleaning of guest rooms, preparing dishes for the guests in restaurants etc whereas personal service robots are applied in front of the house that means in front area. For example: handling guest queries and complaints, service of the guests, billing and payments etc. World's first hotel that started using robots for service in 2015 was Henn-na Hotel in Japan, where robots are being used in many workstations like room cleaning, in room assistants, handling luggage, front desk assistants, and butler service. Apart from functioning of various functions like in room dining, concierge, front desk assistant, serving robots in hotels are attraction point to increase the revenue. People nowadays try and wants to explore new and innovative things; guest order few items but to have trial to be get served with a robot they order things or try to make interactions with the guests. Robots can entertain their guests as well by telling stories, dancing, clicking pictures etc. Through all these they collect the information about the guest, about their likes and dislikes, choices. This data collection will help the hoteliers to get more repeat business and to increase their revenue.

Meyer & Schwager (2007) have explained that formation of guest experience which must be memorable and enjoyable is very complex process as it can be can be only fulfilled by direct interaction or indirect interactions of customers and hotel/ organization. Customer experience will include some factors such as services, facilities, prices, service quality, food quality, customer satisfaction, packaging, advertising etc. Jones Paul (1995) Michael Kasanava introduced the term Guest Cycle and was the first person to introduce it. Advantages for application of technology in hotel industry are improved experience of the guest. Collins (2017) focused for hotel industry is customer experience management which turns the satisfied customers to loyal customers to hotel advocates.

Meyer & Schwager (2007) stated that an organization gives customer experience which includes various factors like production, operations, packaging, advertising, serving, reliability, quality, price etc. Thus, the process of customer experience is difficult to understand. This process is achieved by an interaction between a guest and a hotel or hotel employees whether directly or indirectly during the guest stay, before and after the guest stay. Direct interaction takes places when the guest interacts with the hotel employees for check in, check outs, guest reservations. Indirect interactions take place when the guest makes a call to the hotel for room reservation or any other query.

Table 02: Phases of Guest Cycle

Source: Self-Created

GUEST CYCLE	ROBOTS	ARTFICIAL INTELLIGENCE	SERVICE AUTOMATION
Pre Arrival		Chatbots	Virtual Reality Mobile Check Ins
Arrival	Porter Robots		Digital Kiosks Smartphone Room Keys
Stay	Front Desk Robots Concierge Robots Delivery Robots Vaccum Cleaning Robots Room Assistants robots	Chatbots, Interactive Social Hubs	In room smart technologies
Departure	Porter Robots	Travel Assistants	Express check out
Assessment		AI Platform	

Jatashankar R Tiwari (2016) have explained the different stages of Guest Cycle which includes Pre Arrival, Arrival, Stay, Departure & Post Departure/ Assessment. First stage of guest cycle is Pre Arrival Stage- in this the interaction between a guest and hotel takes place before the guest arrives at the hotel. The most important activity in this stage includes Reservation where guest selects the hotel for stay. Second stage is Arrival, in this phase face to face interaction of guest and hotel takes place when the guest arrives at the hotel. In this stage guests are being greeted and welcomed by the hotel staff and further registration process takes place

- Welcoming of the guest
- Registration process
- Assigning of rooms to the guests
- Handling of luggage
- Handing over the room keys to the guest

Third stage in guest cycle is Stay. In this stage guests get to know about the services offered to the guest by the hotel. This is the important stage as it affects the overall impression and experience of the guest. During guest stay functions performed by the front office staff are

- Handling key
- Maintaining guest accounts

- Guest paging
- Wake Up Calls
- Handling guests' messages and mails
- Travel arrangements
- Guest Room Change Requests
- Providing safety Deposit Lockers

Fourth stage is Departure stage in Guest Cycle. In this stage settlement of guest accounts takes place, settling of guest accounts, check outs of guests, handling of guest luggage. Last stage in guest cycle is Post Departure or Assessment stage. It is not directly related to hotel operations as the guests have departed the hotel. So, feedback is taken from the guest, guest mailers or flyers are sent offering the guest various discounts and offers. As hotel want their guest must re visit the hotel if the guest experience will be good, hotel will be making a repeat guest which will be an add on value for the hoteliers. Howell & Hadwick (2017) mentioned in his study that the automation in hotel services were started many years before leading to self service technologies after this the application of artificial intelligence or robotics system in hotel industry like mobile technologies, digital kiosk, chatbots, robots, etc

Application of AI in hotel industry: -

1. **Chatbots**

   Hotel Hilton with IBM has adopted a robot concierge named as 'Connie'. Connie helps the guests in providing the information related to hotel facilities and amenities, local destinations or tourist places, provide recommendations for dining. Chatbots provides personalized services to the customers and help them in making plans for their trips. Chatbots are being used to interact with the guest and respond their queries and questions in an informative manner. These Chatbots can convert the spec to into text or messages, messages/texts into speech and in native language. These Chatbots helps the travelers to make their experience and stay more memorable and enjoyable and will give a great value in hotel industry to support customers.

2. **Personalized Services to Guests**

   Artificial Intelligence understands their customers or guests better as compared to the hotel employees. Hotel staff may forget the name, likes and dislikes, choices of the customers but artificial intelligence technologies always store this information about the

guest which is impossible for humans without any error. For delighting their customers and making their experience memorable there is lot of data that is to be collected, stored and analyzed whether it is future guest or guests who have previously availed the services or facilities. So, artificial intelligence helps the hotels to improve and to provide personalized services to their customers for better customer loyalty

3. **Mobile Technologies**

Nowadays customers are getting advanced through modern technologies like smart phones can access the different types of rooms available along with the room rates, dining restaurants in the hotel, restaurants near the hotel, services and facilities offered by the hotel and many more. These technologies are converting intangible hotel services to tangible hotel services. After selecting the hotel, potential customers can make a reservation if he or she wants to have reservation he/she can place a special request like any decorations required in the room, extra pillow, extra bedding, guests can even view the layout of hotel rooms with the specifications. These mobile technologies also help the guest to make check in advance

4. **Digital Kiosks**

Digital Kiosks is one of the modern technologies that have helped the hotel guests to register themselves in advance which will help them to reduce their waiting time. During check in if the guest could not speak any language, it becomes difficult for hotel staff to know that what the guest is asking for or trying to say. Through these digital kiosks the guest can do the check in and check outs by selecting the language which the guest prefers. Guest can know about various services and facilities about the hotel, can register themselves, settle their accounts, can get the key cards issued by these digital kiosks, also gives opportunity to the guests to pay their bills. This helped the hotels in upselling of the rooms as well as increased the revenue as the waiting time is reduced.

5. **Robots**

Whether it is front of the house or back of the house, robots can be applied in any of the department for the hotel operations. Robots are programmed machines that have to do the tasks like human without any human interventions. There are three types of robots that can be applied in hospitality industry according to Murphy and Gretzel (2017)

i. Professional Service Robots

If we talk about professional service robots and industrial robots they are applied in the back of the house. For example: cleaning of guest rooms, preparing dishes for the guests in restaurants etc

ii. Personal Robots

Personal service robots are applied in front of the house that means in front area. For example: handling guest queries and complaints, service of the guests, billing and payments etc.

World's first hotel that started using robots for service in 2015 was Henn-na Hotel in Japan, where robots are being used in many workstations like room cleaning, in room assistants, handling luggage, front desk assistants, and butler service. Apart from functioning of various functions like in room dining, concierge, front desk assistant, serving robots in hotels are attraction point to increase the revenue. People nowadays try and wants to explore new and innovative things; guest order few items but to have trial and to be get served with a robot they order things and tries to make interactions with the guests. Robots can entertain their guests as well by telling stories, dancing, clicking pictures etc. Through all these they collect the information about the guest, about their likes, dislikes and choices. This data collection will help the hoteliers to get more repeat business and increase in revenue.

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The two most important sectors in service industry are travel and tourism. Because of the advancement in technology and globalization travel and tourism these two sectors are increasing tremendously. As there is globalization and advancement of technologies in service sector, this

sector has adopted the technologies like robots in restaurants, chatbots for ordering and billing, chatbots for solving the queries of customers, devices that has voice enabled in it which helps the guest in resolving their queries and controlling the functioning of AC, lights etc.

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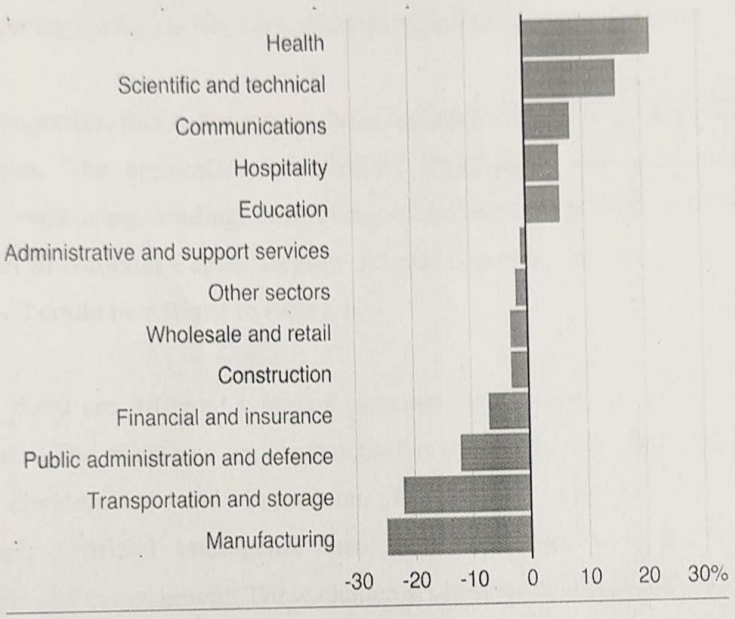

Figure 01: Estimated net job creation by industry sector, 2017-2037

Source: PwC -BBC

RESEARCH GAPS

1. This study will examine the application of artificial intelligence to Food and Beverage Service Department of a premium rated hotel in National Capital Region in terms of the impact that technologies have on guest experience, customer choices and their demand pattern at each stage from pre arrival to arrival to stay to departure and to post departure.

2. It is important to take into account how guests or customers think the application of artificial intelligence in premium star rated hotels with high human interaction. Whether the customer will be satisfied by availing the services from artificial intelligence. At this stage the application and development of artificial intelligence in hotels are relatively low. So, may be the guests would have a different attitude towards accepting this change as they would be constantly served by robots and communicate with electronic devices during their stay at hotels. So, customer perception needs to be explored

3. Another important fact that needs to be considered is how employees will react to new technologies. The application of artificial intelligence will need many changes in planning, organizing, leading, controlling of various operational activities of premium rated hotel in National Capital Region. As the employees would be afraid to accept the change as it could be a threat to their job.

4. In India, there are different types of premium rated hotels in NCR that opt Artificial Intelligence. The main role and core activities of Artificial Intelligence are time saving, product development and innovation. But while doing innovation in products, technology, Artificial Intelligence also faces challenges in terms of administrative, operational and management. These challenges need to be explored.

5. Due to seasonal changes and demand-centric nature of the hospitality industry, hotel and travel businesses are likely to adopt need-specific solutions that address rush during holidays and other unpredictable events. Through Artificial Intelligence premium star rated hotels in NCR can benefit a lot once they can capture, understand and predict the future market demand patterns in a smart manner this need to be explored.

3. DESCRIPTION OF BROAD AREA

Artificial intelligence is a part of our daily lives and in future. Artificial intelligence is called as an intelligence which is displayed by the machines like human beings. Combination of learning techniques and machines is artificial intelligence and is used in application of many industries. In last few years in every business artificial intelligence artificial intelligence has made the greatest technologies development. As of now because of globalization and digitalization customers are also engrossing them with digital technologies hotels and restaurants have to adopt or apply the new and latest technology in order to compete with other premium star rated hotels and to survive in this competition.

Application of artificial intelligence in Food and Beverage Service Department in premium rated hotels in NCR will improve the operations, marketing, advertising and to deliver a good customer experience. Artificial intelligence helps in creating the intelligent interaction which guests or customers nowadays need. Instead of standing in a queue or behind the counter for long, now the guests can save their time by using chatbots, voice recognition devices, kiosks, robots etc. Application of artificial intelligence is not only cost effective and not only reduces labor cost but will help the hotels in data collection about their guests, their likes and dislikes, choices etc.

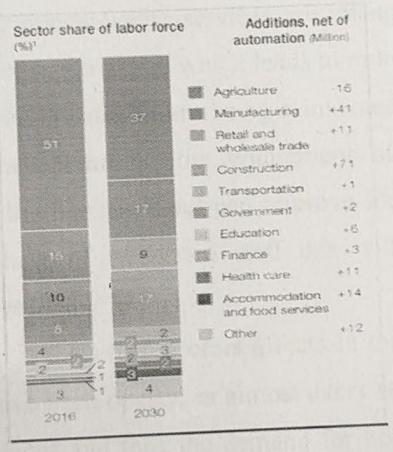

Figure 02: Impact of Automation

Source: McKinsey, Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation

Artificial Intelligence like collection of information, storing of information, programming, understanding the natural language, knowledge representation, artificial life, theory of computation, machine learning, reasoning, interpretations, distribution and many more. Artificial Intelligence is increased and grown in almost every field like in medicine, business, marketing, education, law, economy, engineering designing etc. The two most important sectors in service industry are travel and tourism. Because of the advancement in technology and globalization travel and tourism these two sectors are increasing tremendously.

In today's time tourism sector is one of the biggest sectors and contributes 10 percent to GDP. Hospitality industry is also one of the parts of tourism sector and will grow in future, as people loves travelling and exploring new places. Competition in hotel industry is rising tremendously and to compete with hotels or to survive in this competitive world it is necessary to have regular guests and to have repeat customers and to have new guests it's an expensive task. To have regular guests it's important that hotels must provide a high level of customer satisfaction and high service quality. It is the duty of hospitality employees to give personalized services to their guest and make memorable stay or experience at hotel. For this it is necessary to have the knowledge about the customers need. Artificial Intelligence stores, collects and analyses the customer's requirements and customer's needs which improvises the customers experience by offering personalized services. Hotel industry focuses on the organization or people who provide accommodation and food to their guests where services are intangible. Nowadays customers have travelled so much and are well experienced which leads to more expectations for customer satisfaction and service quality. New strategies are being reinvented by the hotel managers, by continuous changes in a business which means more requirements of money, training, time, staff etc. With Adoption of Artificial Intelligence hotel can improve their service and can increase customer satisfaction with the help of motivated staff this will help the hotels to be in competition and boost their turnover.

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4. OBJECTIVES OF THE STUDY

1. To study the applications of Artificial Intelligence in the Food and Beverage Department of a Premium star rated Hotel in National Capital Region.
2. To examine the benefits and limitations of inclusion of Artificial Intelligence in Food and Beverage Service Department of a Premium Star rated Hotel in National Capital Region.
3. To propose a framework of process and service innovation by enclosing Artificial Intelligence in Food and Beverage Service Department of a Premium Star rated Hotel in National Capital Region.

5. METHODOLOGY

5.1 Research Design

In this study, a descriptive research technique, will be used to gain the background information and recent process-related challenges faced by the hotels. Both secondary as well as primary data, will be used to conduct descriptive research.

5.2 Data Collection

This study will be based on primary data and secondary data

1. **Primary Data**

The data for this research will be collected through a survey method. Questionnaires will be shared with various customers and hoteliers through google forms. Targeted hotels will be 8 (Premium star rated hotels in NCR) in Food and Beverage Service Department.

2. **Secondary Data**

For this research study secondary data will be collected through

- Website s
- Magazines
- Books
- Articles or research papers that are published in International and National Journals etc

5.3 Sampling Design

Convenience Sampling method will be used where the targeted people for the study will be 300 and based on their response analysis will be conducted. Targeted Age for the study will be of 18 years to 60 years. These questionnaires will help in evaluating Artificial Intelligence effects on many factors like spending power of the customers, customers satisfaction, using of technology etc.

5.4 Data Analysis

The data collected from respondents will be analyzed through the latest version of SPSS package. To compare the data, different descriptive statistical methods will be used involving collection, summary and presentation of the data. Suitable parametric techniques will be used to analyze the data. Result findings will be added into the thesis to make conclusion of the research and to give the suggestive outcome

6. EXPECTED OUTCOMES OF THE RESEARCH

1. The study will help the Professionals of Hotel Industry to use Artificial intelligence and to design customized services and products by offering customized services that will meet the guest expectations and requirements.
2. The study will explore to Identify major challenges in the implementation of the artificial intelligence at the institutional level or educational level
3. The study will highlight the guest's perception towards common challenges in Artificial Intelligence and how the premium star rated hotels will improve its existing processes of technologies. The study will explore the opportunities for adopting Artificial Intelligence in Indian hotels
4. The study will explore the need for well-trained staff members and modern Artificial Intelligence apps or technologies to improve the guest experience and services given to the guests.
5. The study will also help the end users / customers in saving time, saving money in check in, chatbots, in room smart technologies

The application of artificial intelligence to consumer research is cost effective as well as at the same time it provides unlimited opportunities. This will allow the hotel industry to design customized services and products by offering customized services that will meet the customer's expectations and requirements and thus will leads to customer satisfaction. These technologies especially self service will help the guest in saving time and will give them opportunities to consume the service when they want and when they are comfortable. Through this the effectiveness and efficiency of services and operation will automatically increase

For the hotel company innovative technologies are a source of cost saving, growth in sales, advertising. As for hotel guests or customers technologies like chatbots, butler robots, in room smart technologies etc are not only useful in providing information, saving time, being at guest's disposal twenty-four seven but for entertainment as well. Often, guests can use a service that includes a robot because they are interested in seeing how it works.

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STUDY OF ARTIFICIAL INTELLIGENCE IN FOOD AND BEVERAGE SERVICE DEPARTMENT IN PREMIUM STAR RATED HOTELS IN NATIONAL CAPITAL REGION

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STUDY OF ARTIFICIAL INTELLIGENCE IN FOOD AND BEVERAGE SERVICE DEPARTMENT IN PREMIUM STAR RATED HOTELS IN NATIONAL CAPITAL REGION

SHORT SYNOPSIS

by

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ABSTRACT

The two most important sectors in service industry hotel industry and tourism industry. Hotels and tourism these two sectors are increasing tremendously because of the advancement in technology and globalization. As there is globalization and advancement of technologies in service sector, this sector has adopted the technologies like robots in restaurants, chatbots for ordering and billing, chatbots for solving the queries of customers, devices that has voice enabled in it which helps the guest in resolving their queries and controlling the functioning of Air Conditioners, lights etc. Artificial intelligence assists the food and beverage service department by using chatbots- the virtual assistants which help in responding the guests' requests, inquiries and customization of orders. 5-star hotels restaurants are using recommendation engines which help the guest to choose their meals according to their eating preferences. With the help of these engines the food and service department identifies the customers taste and preferences, which helps the restaurant managers in predicting the possible sales pattern.

Advancement of technologies or innovation in technologies has affected the guest as well as hotels, thus it is becoming the most important factors for resorts and hotels to change. Based on advancement in Internet of Things (IoT), Automation and Artificial Intelligence in 5-star hotel will change with these changing technologies will only be able to survive in this competitive world. Hospitality industry has just started adopting the artificial intelligence in their working though the hotel numbers that are following artificial intelligence can be less but in coming future the demand and changes in trends will give a great experience.

Keywords: Hotel Industry, Service Quality, Artificial Intelligence, Chatbox, Food & Beverage Service Department, Five Star

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